

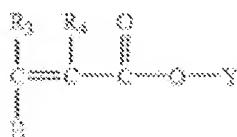
CLAIMS:

What is claimed is:

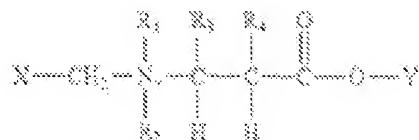
1. (canceled) A method of preparing a chloride free amphoteric surfactant comprising reacting an amine having the general formula:



with a carbonyl compound having the formula:



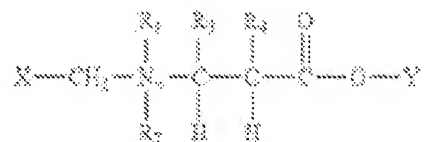
to produce an amphoteric surfactant having the formula:



wherein X is a hydrocarbyl group containing from 2 to 36 carbon atoms, which can be optionally substituted with functional groups, R₁ R₂ R₃ and R₄ are independently hydrogen or a hydrocarbyl group containing from 1 to 4 carbon atoms and Y is hydrogen or a hydrocarbyl group containing from 1 to 4 carbon atoms wherein any of R₁ R₂ R₃ R₄ and Y can be optionally substituted with functional groups, and wherein said reaction is carried out in the substantial absence of any chloride containing compound.

2. (canceled) The method of claim 1 wherein said reaction is conducted at a temperature of between 10° and 150° C.

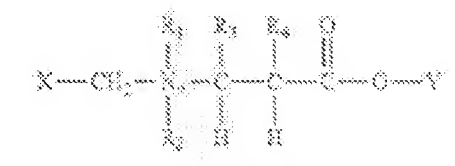
3. (canceled) The method of claim 1 wherein said reaction is conducted in a solvent system.
4. (currently amended) The method of claim ~~[[3]]~~ 2, wherein ~~said solvent system is the aqueous mixture includes a solvent~~ selected from the group consisting of water, alcohols, glycols, glycol ethers and mixtures thereof.
5. (canceled) The method of claim 1 wherein said reaction is conducted in the presence of an alkali metal hydroxide catalyst.
6. (canceled) A chloride free amphoteric surfactant having the formula:



wherein X is a hydrocarbyl group containing from 2 to 36 carbon atoms, which can be optionally substituted with functional groups, R_1 , R_2 , R_3 and R_4 are independently hydrogen or a hydrocarbyl group containing from 1 to 4 carbon atoms and Y is hydrogen or a hydrocarbyl group containing from 1 to 4 carbon atoms wherein any of R_1 , R_2 , R_3 , R_4 and Y can be optionally substituted with functional groups, said surfactant being free of any significant amount of chloride containing compounds.

7. (currently amended) A method of treating a gas well comprising:

introducing into said well an aqueous mixture comprising an amphoteric surfactant in an effective amount of the composition of claim 6 to create a stable foam within the well, the amphoteric surfactant having the general formula:



wherein X is a hydrocarbyl group containing from 2 to 36 carbon atoms, which can be optionally substituted with functional groups, R₁, R₂, R₃, and R₄ are independently hydrogen or a hydrocarbyl group containing from 1 to 4 carbon atoms, and Y is hydrogen, a negative charge, or a hydrocarbyl group containing from 1 to 4 carbon atoms, wherein any of R₁, R₂, R₃, R₄ and Y can be optionally substituted with functional groups, and wherein the surfactant is free of any significant amount of chloride containing compounds.

8. (currently amended) The method of claim 7 wherein the weight ratio of amphoteric surfactant to water in said aqueous mixture is from about ~~[[4 to 1]]~~ 1:46 to about [10 to 1] 1:10.

9. (new) The method of claim 7, wherein the aqueous mixture is introduced through a capillary string.

10. (new) The method of claim 9, wherein the aqueous mixture is non-corrosive to metallurgy used in the capillary string.

11. (new) The method of claim 7, wherein the stable foam created in the well by the amphoteric surfactant mixture is effective in reducing the effects of liquid loading in the well.

12. (new) The method of claim 7, wherein the resulting stable foam is effective at increasing production of gas from the well.
13. (new) The method of claim 7, wherein the resulting stable foam is effective at increasing production of gas and other hydrocarbon liquids from the well.
14. (new) The method of claim 7, wherein X is a hydrocarbyl group substituted with a functional group selected from an amido group, amino group, ester group, and combinations thereof.
15. (new) The method of claim 7, wherein the amphoteric surfactant is introduced to the well to establish between about 1,000 parts per million by volume of surfactant.
16. (new) The method of claim 7, wherein the weight ratio of amphoteric surfactant to water in said aqueous mixture is from about 1:46 to about 1:7.